

Proxy Execution

Juri Lelli (Red Hat)

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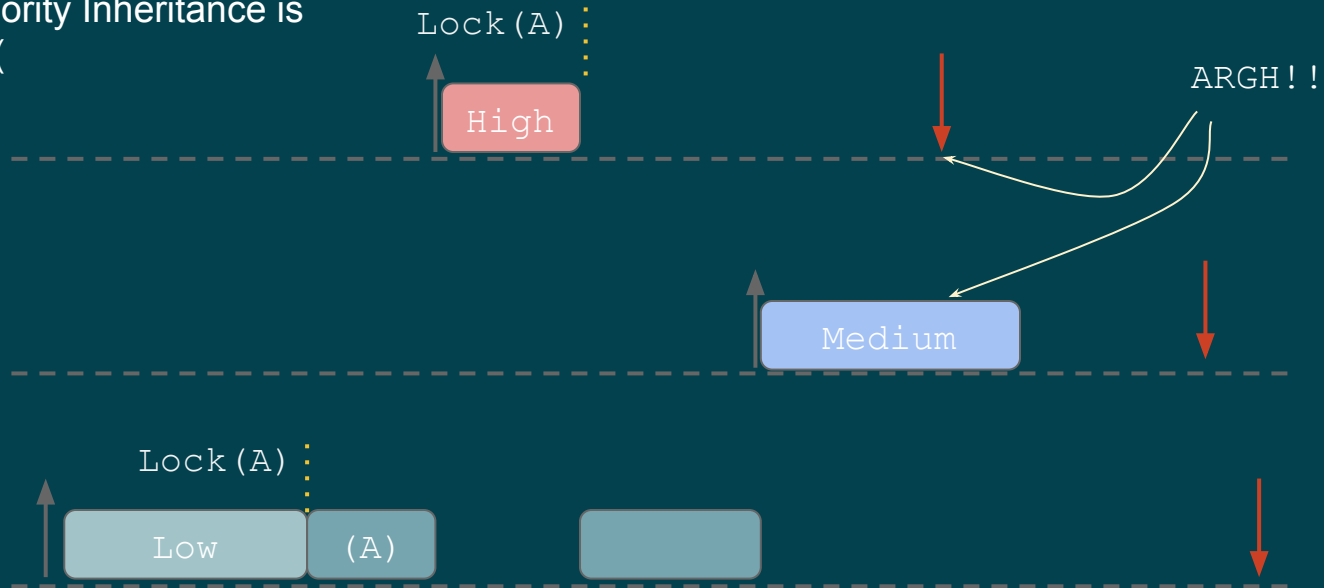
Better Priority Inheritance (AKA proxy execution)

Proxy execution

- What's the problem ?
- Current Priority Inheritance mechanism is not safe for !root
 - Deadline inheritance (... also slightly incorrect)
 - Priority boosted tasks are outside runtime enforcement
- ❖ We would need to **inherit donors' bandwidth** (runtime/period)
- ❖ And keep **runtime enforcement on** while doing that
- ❖ Basically let the mutex owner **execute using the scheduling context** of a (several) donor(s)

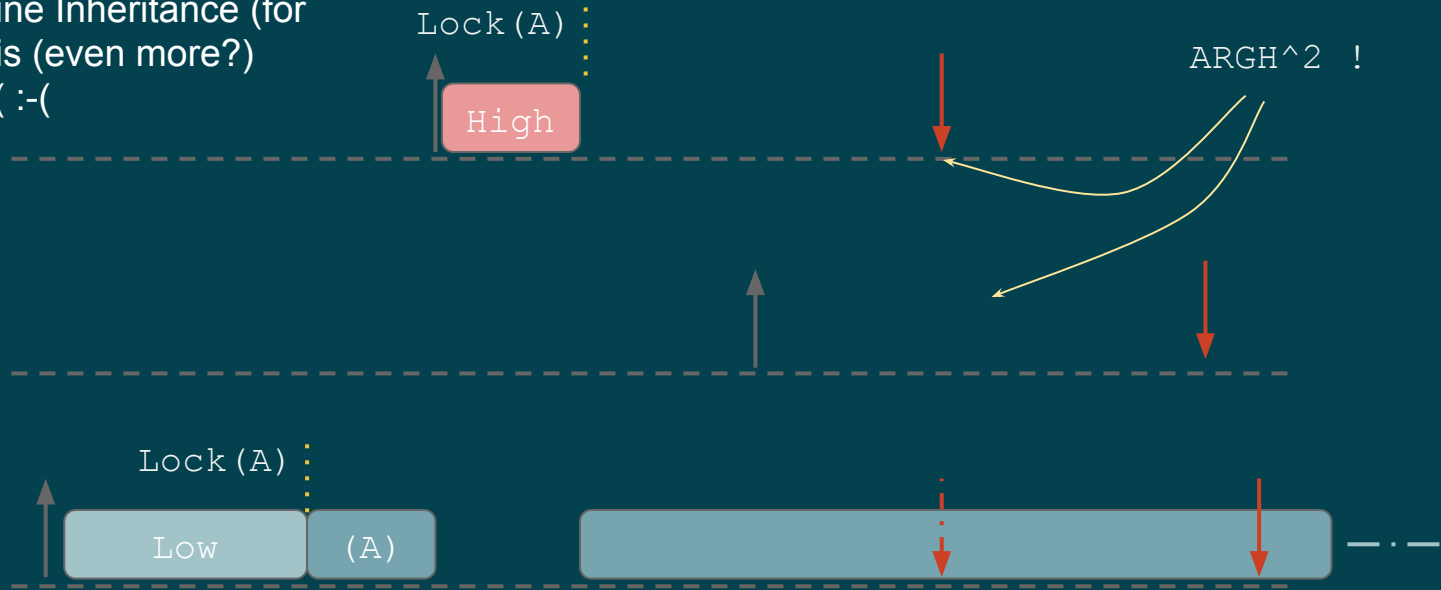
Proxy execution

No Priority Inheritance is bad :-)



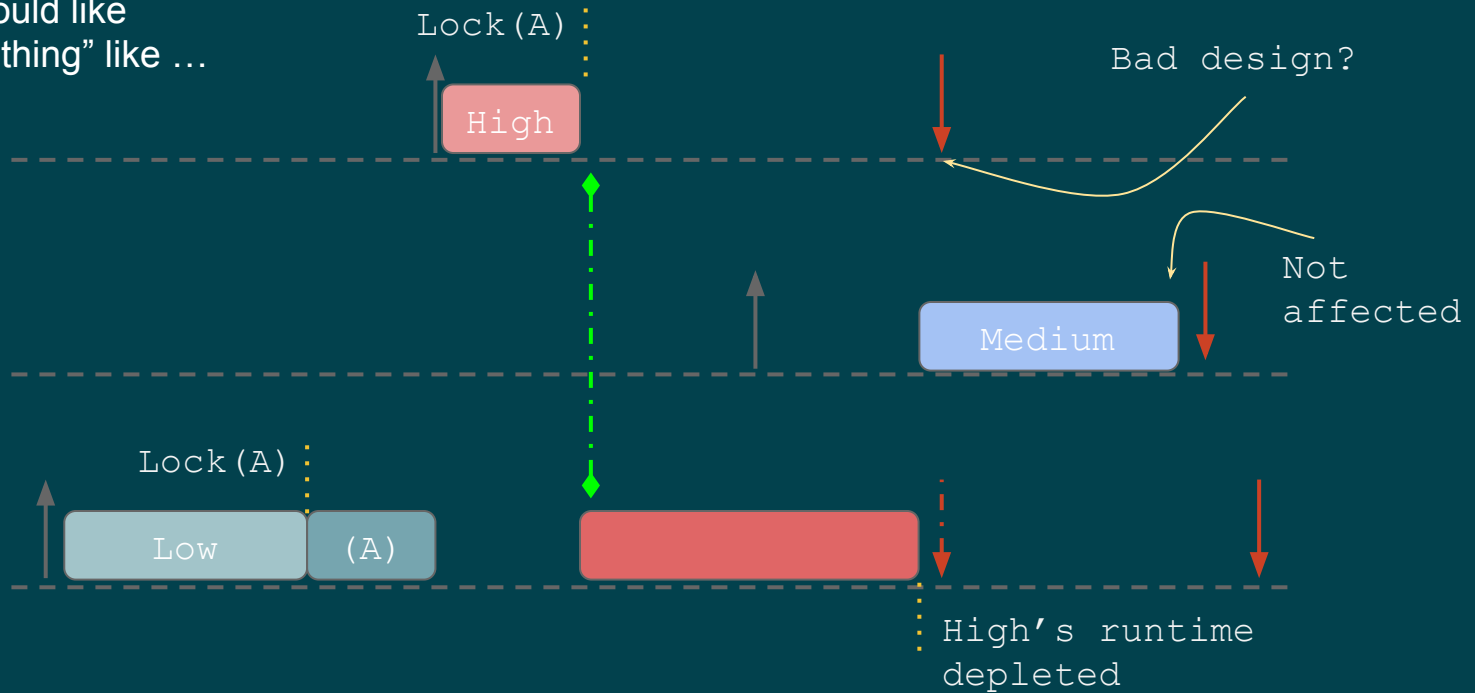
Proxy execution

Deadline Inheritance (for !root) is (even more?) bad :-(:-(-



Proxy execution

We would like
"something" like ...



Proxy execution

High's `task_struct`

SCHEDULING

Info for implementing
a policy, e.g.

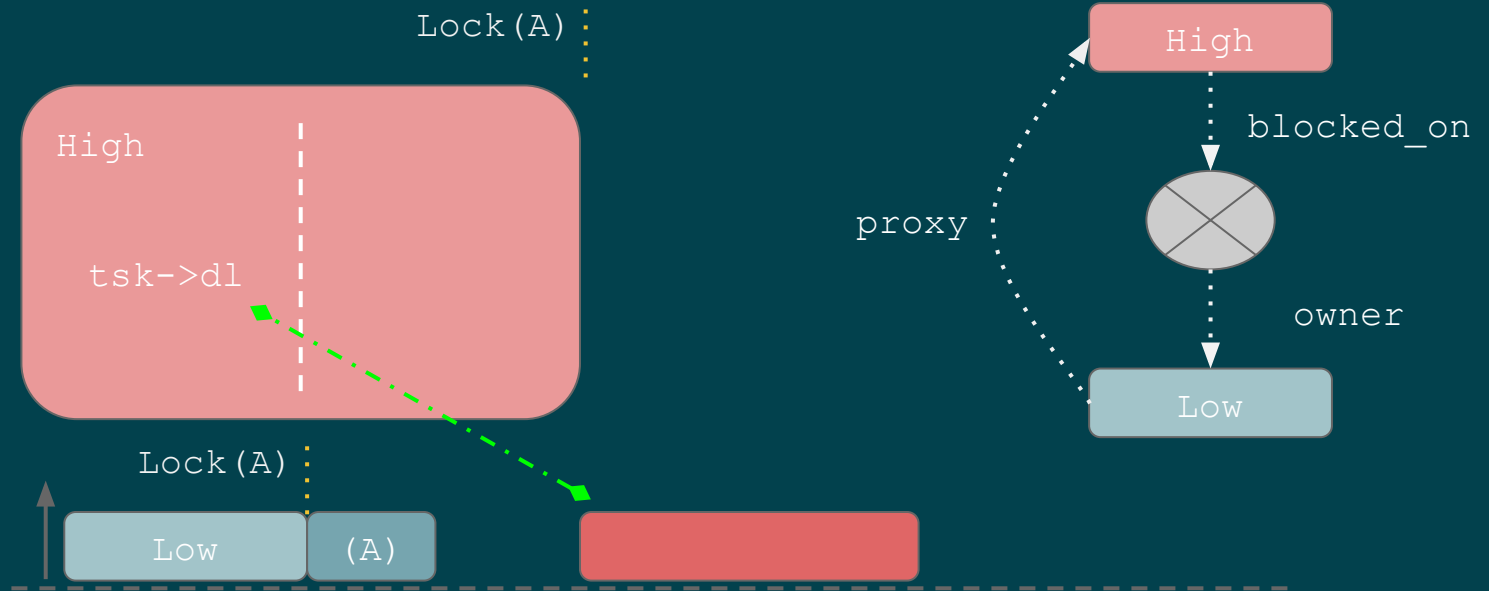
- `tsk->se`
- `tsk->rt`
- `tsk->dl`

EXECUTION

Info for running the
task, e.g.

- `affinity`

Proxy execution



Proxy execution

- ❖ **More general** than Priority Inheritance for SCHED_DEADLINE
- ❖ Could be applied to **other synch mechanisms** (e.g., cond. var., yield_to like calls)
- ❖ “Boosted” task could inherit **additional properties**, e.g.
 - NICE
 - RT prio
 - Utilization clamping values
 - ...

Proxy execution (status update)

- ❖ Last posted on 2018-10-09
[RFD/RFC PATCH 0/8] Towards implementing proxy execution
<https://lore.kernel.org/lkml/20181009092434.26221-1-juri.lelli@redhat.com/>
- ❖ No further updates after that :(
- ❖ People still interested ?

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